Vol. 3 No. 7

September, 1947

SPE NEWS

NATIONAL ANNUAL CONFERENCE

of the Society of Plastics Engineers

JANUARY 21 - 23 DETROIT

AT THE HORACE H. RACKHAM EDUCATIONAL MEMORIAL

TECHNICAL SESSIONS . Jan. 21-23, 9:00 a.m. to Noon

CONFERENCES . . Jan. 21-22. 1 to 6 p.m., Jan. 23, 2 to 9 p.m.

Featuring new materials and developments with special reference to Automotive and Refrigeration Industries

CONFERENCES — By participating companies, clients and engineers in the Banquet Hall. Maximum of two 10′ by 10′ spaces will be assigned to participating companies. New products and developments may be featured in these conference spaces. Current plastic moving pictures will be shown in the afternoons in the Auditorium.

Open to SPE Members **Non-members by Invitation *Only***

Annual Meeting — January 23. 11:30 a.m.

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Reception	Karl Kithil, 610 Stephenson Bldg., Detroit 2, Mich.
Speakers	Carl Frosch, Chairman, Bell Telephone Lab., Murray Hill, N. J. Gunnar Lindh. Vice Chairman, 784 Rivard Blvd., Grosse Pointe 30, Mich.

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SPE NEWS

Issued Monthly to all Members of the Society of Plastics Engineers

Vol. 3 No. 7 September, 1947

INJECTION MOLDING— AN ART OR A SCIENCE?

Some deadline thoughts leading to quality molding

By A. R. MORSE

As suppliers of injection machines we are often asked by concerns contemplating the injection process, is it an art or a science? While it is true that mold temperatures and other variable process factors are being more closely watched today than ever before, and with increasing experience most molders can predict cycles accurately to within a second, still there remain a great many unaccountables that keep one molder definitely ahead and more successful than another. Whether these rules of thumb that make injection molding an art develop by skill, by accident, or by sheer desperation I do not know. Let us look at a few of the molder's problems which can be discussed without giving away anybody's trade secrets.

During the tussle for injection powders at the end of the war a great deal of acrylic sheet stock scrap accumulated and was sold to the injection trade. It proved a most refractory material to mold, and the material manufacturers said it was totally unsuitable for the process. One molder, however, by sheer persistance not only developed a technique for molding it, but made a thoroughly creditable product out of it, and laid the ground work for a business that is booming today. One of the curious incidents of this molder's success story concerns a difficult or problem mold which consistently refused to fill out all cavities. After trying every known means of venting, and a few besides, as well as exhausting every possible combination of temperature and pressure, the molder simply took the mold out and turned it over — and it ran perfectly! This is a trick worth noting, for I have since found out that it has saved many a job when every other trick has failed.

One of the most common problems, still unsolved, which is found in injection molding today is that of the weld mark, especially when the material flows around a pin, or over a core into a cavity cut from solid steel. Double or ring gates seem to have little or no merit. A complete redesign so as to split the cavity is often out of the question because of the expense of the core pull. The first step that can be taken, however, is in the elimination of a heavy edge or bead from

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Mr. A. R. Morse was born in Denver, Colorado and educated in Mining Engineering at University of Colorado and Production Engineering at Harvard Graduate School of Business Administration. He worked two years as field installation engineer for Hartford Empire Co. Since 1940 he has been District Sales Manager in Cleveland for Reed-Prentice Corp., Mfgrs. of Injection Molding and Die Casting machines. Hobbies are almost entirely of scholarly nature, including two books to be published in 1948, one on M. P. Shiel, English Novelist, and the other on G. E. Burr, Etcher of The American Deserts, both in the nature of definitive studies of the men and their work.

LOCAL SECTIONS TO SPONSOR SPE NEWS ISSUES

This issue begins a series sponsored by individual Sections of SPE. The Cleveland Section, sponsor of this issue, has provided the technical articles, and much of the advertising. As each Section sponsors an issue, the membership as a whole can see the activities and scope of each Section. The October issue will be sponsored by Chicago, November by Toledo, December by Newark, January by Detroit, and so on through the year.

SPE NEWS

Volume 3 Number 7

Published monthly except July and August by the Society of Plastics Engineers, Inc., under the direction of J. H. DuBois, Chairman, National Publications Committee.

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NATIONAL SPE CONFERENCE TO FEATURE TECHNICAL PAPERS; AUTOMOTIVE USES

The National Annual Conference of this Society will be held at the Horace H. Rackham Educational Memorial in Detroit, Michigan from January 21 to 23, 1948.

This conference will feature the important developments of 1947 in the entire field of Plastics. Being held in Detroit, these new developments and materials will be viewed especially from the standpoint of the automotive and refrigeration fields.

The Conference will be divided into two parts. The mornings will be devoted to the Technical Sessions. Technical papers on new materials, new processes will be presented by the nation's leading Plastics Engineers. Each paper will be discussed by other engineers. These Technical Sessions will be open to all persons interested upon registration.

The afternoons will be devoted to Conferences by Participating Companies, Clients and Engineers. For this purpose the Society is taking the Banquet Hall of the Rackham Memorial. This beautiful room will be divided into Conference Spaces where the participating companies will meet with their Clients, Engineers for a discussion of applications of the newly developed processes and maetrials. These conference spaces may be used to demonstrate materials and processes. This Conference will be open to Members, their guests, and to invited participating companies. During the afternoon the latest moving pictures of Plastics will be shown in the Auditorium.

The Technical Sessions will be held each morning in the Auditorium from 9 A. M. to Noon. The afternoon Conferences will begin at 2 PM on Wedesday, Thursday and Friday. On Wednesday and Thursday, they will close at 5 P. M. and at 9 P. M.

The National Annual Meeting of the Society will be held at 11:30 A. M. on Thursday, January 22, 1947 in the Auditorium. The National Council will meet for election of National Officers on Wednesday, January 21, 1947 at 4 P. M. The Annual Conference of National and Section Officers of the Society will be held at 4 P. M. on Thursday, January 22nd.

S.P.E. PRIZE PAPER CONTEST

Continued active interest and promotional work is essential to the Prize Paper Contest. Your support is again requested to make sure that your section is adequately represented and the following summary of instructions is given to insure that you have adequate information:

Contest Rules

1. Contestant must be less than 30 years old.
2. Paper must be on a subject of interest to the Plastics Industry.
3. Paper must not be released for publication prior to release by S.P.E. at the annual meeting.
4. Paper must not exceed 5,000 words exclusive of diagrams and photographs.
5. All papers become the property of S.P.E. and none can be retuurned.
6. The contest closes in the local sections at midnight, November 30, 1947. All winning local papers must be submitted to the National Committee by December 15, 1947. (Local sections may set their closing date for any time in advance of November 30, 1947.)

In addition to the local prizes awarded by the local sections, the following National Awards will be given:

First National S.P.E. Award	$500.00
Second National S.P.E. Award	Certificate
Third National S.P.E. Award	Certificate

National Judges

George W. Clark, Past National President of S.P.E.
Owens Illinois Glass Company, Toledo, Ohio

John Delmonte, Technical Director,
Plastics Industries Technical Institute
Los Angeles, California

Henry M. Richardson, Consulting Engineer
Springfield, Massachusetts

Dr. H. A. Winkelmann, Dryden Rubber Company
Chicago, Illinois

Dr. Paul D. Zottu, Consulting Engineer
Newton 58, Massachusetts.

Please check up on the local activity to make sure the following steps are taken:

1. Make sure that local newspapers give adequate publicity to the local contest. News releases covering the contest should be sent in frequently.
2. Get out a local bulletin for posting on local bulletin boards. (This will also boost local interest in your section.)
3. Make sure that local judges and local prizes are selected and given adequate publicity.

NEXT MEETING OF THE NATIONAL COUNCIL

Newark Athletic Club, Newark, N. J.

Wednesday, October 8, 1947 at 1:30 P. M.

Members of the National Council will join with the Newark Section in a dinner meeting at 7 P. M.

REPORT OF THE TECHNICAL COMMITTEE

Professional Activities Outlined for the Year

(A National Committee Report)

By ROBERT G. CHOLLAR

At the first of the year there were, in existence, six National sub-committees of the Professional Activities Committee. At the present time the chairmen of these committees are as follows:

Laminates—Harry Kline, Reichhold Chemicals, Inc., 601 Woodward Heights Boulevard, Detroit 20, Michigan.

Consumer Specifications—Carl J. Frosch, Bell Telephone Laboratories, Murray Hill, New Jersey.

Coatings—Paul F. Corbin, Textileather Corporation, Toledo, Ohio.

Chemical Investigation—Galen J. Wilson, The National Cash Register Company, Main and "K" Streets, Dayton 9, Ohio.

Molding Technique—J. K. Totten, Ford Motor Plant, Dearborn, Michigan.

Product Design—Joseph A. Hill, Barnes & Reinecke, Chicago, Illinois.

Tool Design—No Chairman.

At the beginning of the year a Materials sub-committee was in existence which has since been discontinued and replaced by a Chemical Investigation sub-committee.

At the beginning of the year, with the exception of the Consumer Specifications sub-committee, no other National sub-committees were active and no defined programs were in existence and in the hands of the local groups.

A meeting of Mr. Chollar, chairman, and the Vice-Chairmen: Messrs. C. J. Frosch, W. L. Hess, and J. Delmonte, in Chicago, in January, resulted in the following policy of action for the S.P.E. National technical program:

It was re-established that the strength of the National technical programs would depend upon the contributions made by the members of the local sections. It was decided that the programs of all National sub-committees would be submitted to each local technical chairman during the first quarter of the year.

Each local chairman would advise as to the contributions which might be made by his own members to the National committees and he would see that the pertinent information was forwarded to each National committee chairman so that expansion of the program could be established.

It was felt important that the National sub-committee chairmen be able to work freely with members of local sections and it was decided that the Professional Activities chairman of each local section should act as a facilitating medium for the organization of activities within his section and the presentation of resulting material to the National chairmen.

Mr. Chollar suggested that a monthly report from each of the local Professional Activities chairmen be prepared.

Plus the fact that there were no organized National programs, with the exception of Consumer Specifications at the beginning of the year, additional handicaps in the pursuance of the suggested program were immediately obvious.

First, with the exception of two local sections, it was found that there were no local Professional Activities chairmen in the local groups in existence and consequently no method of communion of ideas with the National committees was available.

Several months elapsed before the local sections were able to appoint their chairmen to act in coordination of their technical activities, through whom the National Committee chairmen could cooperate. All local sections, with the exception of two, appointed chairmen to act in this capacity, and this information, being placed in the hands of the National Committee chairmen, said chairmen were prepared to establish the program for the year.

Essentially, this program consisted of the submission of the National Committee Chairman's ideas on the areas to be covered by his committee to the local sections for their constructive criticism in open formum discussion. Also, this procedure had as its purpose the obtaining of information concerning the interested members in the local sections who could constructively participate in the National Committee program. This procedure was followed by four of the National Committee chairmen.

Dr. Harry Kline, Chairman of the Laminates Committee, submitted a most excellent proposal of laminate activity to the local chairmen. He suggested five main functions for the National laminating committee which are as follows:

1. Laminates symposium at National meetings where latest developments are discussed.
2. Coordinated efforts of various sections to improve the members' knowledge of laminates in all of its ramifications.
3. Development of special procedures and tests helpful in the production and use of laminates and not now covered by test procedures of A.S.T.M. and other groups.
4. Cooperation with A.S.T.M. and other groups in suggesting to them the types of tests most needed and not now available.
5. Cooperation with suppliers of resins, paper, cotton, fiberglass, etc., by suggesting to each the improvements needed in the above to further expand the uses of laminates.

Dr. Kline then followed with a detailed discussion of each of the five functions and the method of attack. This discussion is listed as follows:

1. As the Society of Plastic Engineers is a national group which holds national meetings, it would seem very desirable that once a year, at least, we get together outstanding speakers who can discuss the latest developments in laminates for the members who are interested in this subject. It would, of course, be necessary for the Laminates Committee to cooperate with the Program Committee in order to have a program which would not conflict with other functions of the organization.
2. Here we speak of coordinated efforts of various sections to improve each member's knowledge of laminates.

Under this function it is believed the S.P.E. Laminating Committee can do a very nice piece of work. At the present time, the published knowledge of laminates is scattered through various plastic journals as well as other journals, such as Rubber Journals, Chemical Journals, and etc. In addition, the patent literature also contains a good deal on laminates in general, including resins, special raw materials, and etc. Any member interested in a certain subject, as for example, low pressure laminates, would have to go through a great deal of work in order to compile the latest published information on this field. No one member usually has the time to go into a great deal of literature study to compile such information. It is thought that one of the first functions to be undertaken by the various sections interested in laminates would be to make a literature survey of the laminating field. As a suggestion, a large number of subdivisions under Laminates have been jotted down at random. It would be very helpful if certain sections undertook to make a literature study of certain of these subdivisions. Also there are, no doubt, other sub-divisions which have been omitted and which the various sections could add to. This literature survey should cover anything published or patented on the

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Professional Activities

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particular subject. In reviewing an article on a particular subject it would be desirable to have enough information abstracted so that the person reading it would know whether it would be of sufficient interest to him to obtain the original article. Once all of the abstracts on the many subjects of laminates are compiled, it would be desirable to have S.P.E. publish the literature survey of the laminating field. This literature survey would be of great interest to every one working in this field as he could quickly tell what is known and published, and what is not published. It is suggested that the various sections give an indication as to whether they would be willing to do part of this literature survey.

Below is a list of sub-divisions suggested for the literature survey. Other subjects will, no doubt, be suggested by the various sections.

Dielectric Properties of Laminates
Mechanical Properties of Laminates
Molded Laminates
Low Pressure Laminates
Decorative Laminates
Chemical Resistance of Laminates
Resistance of Laminates to Heat
Equipment for Production of Laminates
Light Resistant Laminates
Phenolic Compounds, Catalysts
Aldehydes, etc., used for Producing Phenolic Laminating Resins
Melamine and Urea Resins for Laminates
Polyester Resins for Laminates
Paper Used for Producing Laminates
Fiberglass in Laminates
Woven Cotton and Asbestos Fabrics in Laminates
Applications of Laminates in the Electrical Industry
Applications of Laminates in the Automotive Industry
Applications of Laminates in the Chemical Industry
Applications of Laminates in Industries other than the Electrical, Automotive and Chemical Industry
Plywood surfaced with Laminates
Conventional Methods for Testing of Laminates
Special Tests for Special Properties of Laminates
Machining of Laminates
Properties of Laminates at Very Low Temperatures

3. Development of special procedures and tests helpful in the production and use of laminates and not now covered by test procedures of A.S.T.M. and other groups.

As you all know the A.S.T.M. is an outstanding organization for developing test procedures and it certainly is not desirable for use to cover work which they are doing so splendidly. However, there are certain manufacturing tests and other tests which A.S.T.M. does not work on, but which are very important to the industry. The test for volatiles and flow properties of impregnated materials worked out some time ago by the laminating group of S.P.E. are examples of tests which are very necessary. Another example might be for the industry to work out a test for odorless properties of laminates used by the refrigeration industry. At the present time, resin manufacturers have their own tests for odorless properties. The laminators might have other tests and the refrigeration industry, might again have other tests. An odorless test on laminates agreed upon by all factors in the industry would seem to be very desirable and would be a legitimate function of the S.P.E. laminating groups.

4. Cooperation with A.S.T.M. and other groups in suggesting to them the types of tests most needed and not now available.

Among the many cities where S.P.E. have branches are individuals who, no doubt, would like A.S.T.M. to work on a test which they need. It would be an idea to clear these through the chairmen and then have the S.P.E. group contact A.S.T.M. and suggest that they work out such tests. An an example, at the present time there is a certain amount of alkali resistant laminates produced. Some laminators determine alkali resistance by using a strong caustic soda solution such as 20% and run their tests on a hot solution. Others probably use a weaker caustic soda solution and run their tests at room temperature. It is thus difficult for anyone interested in alkali resistant laminates to compare the various products. It is believed a standard alkali resistance test is a legitimate function for A.S.T.M. to work out. There are many other such tests which can suggest themself to the various members.

5. Cooperation with suppliers of resins, paper, cotton, fiberglass, etc., by suggesting to each the improvements neded in the above to further expand the uses of lamintes.

Many of you who have worked on the production of laminates have been stopped by the fact that the resin, or perhaps the paper or canvas, lack a certain desirable property. It may be that the producers of these materials could impart such a property if they were informed of the need of these properties. By compiling a list of the properties not now available in these materials and bringing these to the attention of the proper producers, we believe great improvements could be accomplished. Such a list could perhaps be used as the basis of a talk to be given at one of the national meetings of S.P.E.

It is believed Dr. Kline's contribution as the initial step for his committee was quite adequate to solicit from our local sections assistance and criticism on such a program. To date, however, Dr. Kline comments that we have not obtained sufficient replies and the replies do not as yet indicate the personnel available in the sections so that we can plan to go ahead with the program as outlined. The percentage of replies to his program has been, to date, only 20%.

Dr. Kline also comments, however, that the replies will probably be delayed until early in the fall, due to the vacation period at hand.

* * * *

As Mr. Carl Frosch, Chairman of the Consumer Specifications Committee, is representing the Professional Activities Committee in the reading of this report, he is prepared to give a last minute and up-to-date comment on the action of his committee.

The Consumer Specifications Committee was in action the first of the year, with two active Sub-Committees in:

Business Machines—Byron W. Nelson, Chairman, The National Cash Register Company, Main and "K" Streets, Dayton 9, Ohio.

Domestic Appliances—Harold L. Brouse, Chairman, Crosley Division of The Aviation Corporation, Cincinnati 25, Ohio.

A last minute comment on the Business activity is that the publication of the speech ("Plastics", April, 1947) presented by this group at the National meting has resulted in more participation by other companies within the industry who apparently have felt it important to be identified with such a cooperative technical movement.

* * * *

Mr. Paul Corbin, Chairman of the Coatings Committee, has submitted to the local sections, for their consideration, standard test procedures for pyroxylin and vinyl resin-coated fabrics which have been developed by the Pyroxylin and Resin Coaters Institute. These methods include

Tensile Strength Test
Tear Strength Test
Adhesion of Coating
Analysis of Weight of Coating
Analysis of Coating Composition
Spue Test
Cold Crack Test
Block Test
Resistance to Phenol Test
Resistance to Alcohol Test
Abrasion Test
Hydrostatic Pressure Test
Water Permeability Test
Fastness to Rubbing Test
Fire Resistance Test

Mr. Corbin has received, to date, replies from less than 50% of the sections; although these replies have been constructive and it appears that there will be a

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AN INFORMAL HISTORY OF THE CLEVELAND SECTION

By A. R. MORSE

The history of the Cleveland Section of S.P.E. dates back to the fall of 1943, to a luncheon date in Detroit, during the course of which Bill Hoey, Walter Connelly, and Steve Hiltebrant urged me to undertake the founding of a section here. On the evening of Friday, November 19th, 1943, with a turnout of something near 150 men, at the Carter Hotel, an organization was outlined, and a steering committee of several members and prospective members was formed to guide the group till officers could be elected.

As I remember the occasion, R. J. Metzler of Hercules Powder Company gave a talk on "Ethelcellulose Plastics," and W. B. Hoey, a past president of the society, or was it Phil Robb, substituting—I cannot recall now—gave an address of welcome to the new section—the third to be formed, following after Detroit and Chicago in that order. I was appointed chairman of the steering committee which included Nate Lester, Elno Trump and others.

As a deadline and substitute historian, without any notes or records, I am afraid I can do no more than generalize on the rest of the history of the Cleveland Section. I particularly ask the indulgence of my fellow members for errors and omissions.

I believe that L. S. Shaw was first president of the section, and that our roster of directors included Frank Ackerman, Elno Trump, Al Belshaw, Jay Southwell, Louis Friedman, Phil Britton, Frank Prendergast, Howard Nicol, and Warren Prince. That I was secretary in 1944 is a job I'll not soon forget, and is the only thing which inclines me kindly toward our present secretary whose last minute defections as a historian Scott Moulton has given me such short notice to rectify.

In the summer of 1944 the group held an outing at the Astorhurst Inn. Supervised outdoor sports met some competition, but all the boys took time out for the clambake. We had a real floor show provided by Frank Ackerman and Louis Friedman, with peppy red-headed Gregg Langermeier acting as MC. In those days, with the money from initiation fees and dues coming to the section directly, we were rich, and thought nothing of laying out six or seven hundred dollars for a party. As I recall a substantial door prize was won by Doc Whitacre. The following years of 1945 and 1946 we had a summer picnic at The Richmond Country Club, with events and a real feed. A strip tease act provided by the committee in 1945 fell as flat as a wet wash-rag among our staid members, and in 1946, being both poorer and wiser, we merely had a strolling singer for entertainment. In 1946 we staged a successful ladies night and Xmas Party combined, with bingo prizes rounded up by Bill Miskella. We still have a good way to go toward really integrating our group, and the couple of party nights planned for the coming year should help a lot.

We have had a monthly meeting the last Friday of each month, excepting July and August (and excepting of course that member whose wife complained about the SPE meetings we were having EVERY Friday night!). In the early days we met a few times at the Carter Hotel, and then later at The Engineering Society, and there the last Friday was the only open night. Since then, despite some minority objection, we have retained the last Friday rule, although we have experimented with other meeting nights. Our most recent meeting place has been The Cleveland Club. At one time we were flush enough to put away a $500 war bond before the party boys could spend it, and that we still have. We also gave a small compression press, with mold and powder to the Veterans at Crile Hospital here.. For the life of me I can't recall the donors of the latter, (Editor's Note: Molding powder was donated by Durez Plastics, Rohm & Haas, Tennessee Eastman, and Chemical Rubber) though it does seem to me that Bill Johnson and Elno Trump finally got the mold out, that Homer Lansdowne raked up the powder, and that the Louis Friedman took all the credit: at least I recall a newspaper picture of him glim-

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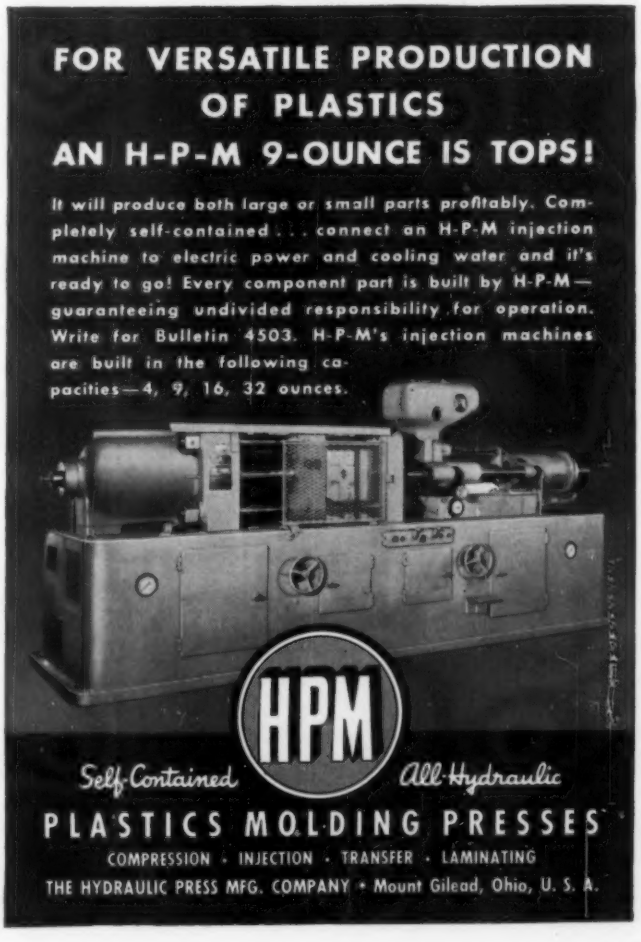
A. R. (Ren) Morse is District Manager for Reed-Prentice Corporation, of Worcester, Mass., with offices in The Penton Bldg. He was chairman of the original steering committee of the Section, and has been a director or officer since 1943.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CLEVELAND SECTION SEES BRIGHT FUTURE

By GEORGE B. KOCH, JR.

The Cleveland Section of the Society of Plastics Engineers, one of the first organized sections of this great Society, is looking forward to a banner year in all phases of its activities. Located in a highly industrial area with a diversification of industry, the Cleveland Section will make a determined effort to build and increase its membership from those industries using plastics materials.

Back row, left to right: Jesse H. Day, Editor SPE News; Douglas H. Sanders, Chairman Membership Committee; William Johnson, George B. Koch, Jr., Chairman Publicity Committee; Hugh Winn, Vice President; A. Reynolds Morse, Maurice Spain, Jr. Front row, left to right: Clifford F. Saurwein, Frank J. Ackerman, Treasurer M. Scott Moulton, President; William H. Nicol, Paul L. Reed, Francis C. Hays, Treasurer. Ward T. Van Orman and Frank A. Martin were not present.

Most important, the Section has planned a Speakers' Program that includes many top-notch men in the plastics industry. Many of the speakers come from the Cleveland area. Expression of the newest developments and methods of manufacturing plastics will be the keynote in every meeting during the year. It must be recognized that plastics can play an increasing importance in the industrial development of this country and the engineers must, so to speak, "carry the ball."

Company visits will be worked into the 1947-48 program. Last year a very successful visit to the Cleveland company, Plastics Engineering Incorporated, touched off many requests for visits to other plants in the area.

Two training courses, one conducted by the Cleveland Section and the other by the Cleveland Institute of Retail Training, will be repeated again this year. Both of these courses were well received last year. The Cleveland Section course is devoted to teaching the fundamentals of the "science of plastics" and is open to anyone interested in this field.

The course sponsored by the Institute of Retail Training last year included a session on "Plastics for the Retailer and Consumer". Paul Reed, former chairman of the Cleveland Section, conducted this session and stressed the "nature of plastics materials and the plastics industry with the emphasis on fundamental information that is practical for those who buy plastics products for sale to the consumer and those who actually make such consumer sales."

The officers for the Cleveland Section for the year 1947 are as follows: President, M. Scott Moulton, B. F. Goodrich Chemical Company; Vice-President, Hugh Winn, Case Institute of Technology; Treasurer, Frank J. Ackerman, Ackerman Plastic Molding; Secretary, Francis C. Hayes, The Chemical Rubber Company.

The Program Committee of the Cleveland Section is busily engaged in completing the program for the 1947-1948 season. It has tried to arrange a well rounded program which will interest the largest proportion of our membership. The tentative program follows:

October 24, 1947—
Talk, "Importance of Testing to the Plastics Industry".
Laboratory visit, Goodrich Chemical Company Laboratories, Rose Bldg., Cleveland.

Nov. 21, 1947—Schedule not complete.

Dec.—Christmas Party, including the Ladies.

Jan. 30, 1948—R. L. Davis, Fabriform Company, Byesville, Ohio, "Fundamentals of Molded Part Design".

Feb. 27, 1948—Symposium on Preheating. Roster of Speakers not quite complete.

Mar. 26, 1948—Symposipm on New Methods of Mold Construction. Roster of Speakers not quite complete.

April 30, 1948—Social Meeting with the Ladies.

May 28, 1948—Charles Franz, Consultant, Detroit, Mich., "Estimating Manufacturing Costs and Establishing Selling Prices."

June 25, 1948—Visit to the Case Observatory — Ladies included.

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PRESIDENT'S MESSAGE

The first half of 1947 has been a banner period for SPE. Our growth has been the largest in the history of SPE. The enrollment has passed the 2000 mark. Our Local Sections now extend from the Atlantic to the Pacific.

Through the medium of the regularly scheduled meetings of our Local Sections great good is being accomplished for the entire Plastics Industry. National SPE exists for the benefit of the Local Sections and the Local Sections control SPE Nationally. SPE is a democratic organization. It is your organization. Make the best of it.

During the fall months of 1947 it is most desirable that SPE maintains its momentum. Each and every member, each and every committeeman, each and every Officer can assist in making every Section Meeting a better meeting. Better Section Meetings are indicative of SPE progress. By such effort and contribution to the fund of engineering knowledge, is the manner in which **you** can make the most of SPE.

(Signed) Tom Orr,
National President.

SPI USES VETO AGAIN REJECTS CO-OP PLAN

As a result of the Chicago Meeting of the National Council of SPE on May 7, 1947 and action by the SPE Board of Directors, there was formed a Joint Committee composed of four members of SPI and four members of SPE. The function of this Committee was to make recommendations to both the SPE and SPI Boards as to the best methods of unification of engineering efforts in the Plastics Industry.

President George Clark of SPI appointed the following members: Neil Broderson, Chairman; Dr. Meyer Garson, William Phillips, N. K. Rakas.

President Thomas E. Orr of SPE appointed the following members: J. H. Dubois, Chairman; Dr. Paul Zottu, Carl Frosch, Robert Chollar.

This Joint Committee met at the Commodore Hotel in New York City on June 13, 1947. After full discussion and deliberation this Committee agreed to recommend a cooperative plan and submitted a chart of organization. The essence of the plan was complete cooperation between the two groups for the good of the entire industry; however, each group was to retain its identity.

Meeting at the Nippersink Country Club at Genoa City, Wisconsin, on June 27, 1947, the SPI Board of Directors rejected the findings of this important Joint Committee. In brief, the SPI Board indicated its desire to dominate all Engineering Activities in the Plastics Field.

The SPE National Council acting individually had already expressed approval of the action of the Joint Committee. The Council was prepared to call a special meeting for ratification of the Plan. This action was made unnecessary by the rejection of the SPI Board. The SPE National Council will consider the situation at its next meeting. See page 14 for report.

PERSONALITIES

George H. Britton, 26 Allen St., Brockport, N. Y. has been appointed as New York State representative by the International Molded Plastics, Inc. of Cleveland, Ohio.

H. J. Kasch, Jr. has assumed the position of Works Manager for Kurz-Kasch, Inc., Dayton, O.

C. M. Jensen assumed the position of Chief Engineer for Kurz-Kasch, Inc., Dayton, Ohio.

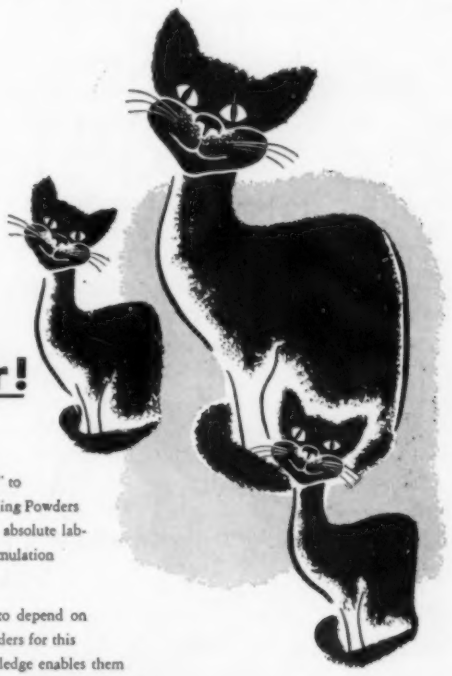
Robert L. Davidson has been appointed District Sales Manager of the Dayton Territory for the Kurz-Kasch, Inc., Dayton, Ohio. Mr. Davidson will also be in charge of Advertising.

SECTION CHARTERS READY

National Headquarters reports that the new Charter Certificates for Local Geographical Sections are completed and ready for distribution.

These Charters indicate the date of recognition of the Section by the National Council. They are engraved and embossed in two colors on sheepskin paper. The Charters will be sent via registered mail to the Section Secretaries.

Sections are urged to make a ceremony of presentation of the Charter. The Newark Section will receive its Charter from the National President at its meeting at the Newark Athletic Club on Wednesday, October 8, 1947, at which time all National Officers will be present.



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INFRA-RED IN THE PLASTICS INDUSTRY

By WM. J. MISKELLA

Second installment of the article published in the March, 1947 issue of SPE NEWS.

Synopsis of first installment

Basic theory of infra-red heat with incandescent lamps and illustrations show the advantage of diagonal positioning and angularly directed heat. Infra-red in compression moulding. Infra-red in injection moulding; disadvantages of pan drying and advantages of drying and pre-heating plastic granules automatically, granule by granule, by infra-red. How the moisture laden air is removed. Outstanding features of voltage controlled temperature regulators. Infra-red in extrusion moulding. The advent of the Hopper-Heater.

When the preceeding installment was written, practically all machines were operated near a given molding machine where the hopper had to be filled from the floor by a workman, bucket by bucket. This installment brings the reader up to date with the latest developments which were released on September 1, 1947.

DRUM FEED

The dream of delivering plastic powder exactly as it comes in the shipping drum without exposure or the need of human handling has at last been achieved. Now a full drum will feed for hours without further attention. This applies to extrusion as well as injection molding. Indeed, the drum feed idea can be had for floor use as well as for feeding the hopper of any molding machine. In the photo is shown the drum inverted in the 100 pound capacity funnel attachment which feeds into the standard hopper of Vibra-Veyor.

INSULATED DRAIN DRAWER

While we are on the subject of the floor machine, mention should be made of the Insulated Drain Drawer which may now be attached to any standard Vibra-Veyor by ordering the necessary parts, taking out 4 screws and attaching the drawer. When the drawer is pulled out it becomes a two-handled container, insulated to hold the heat. It may then be carried over and dumped in the hopper of the molding machine.

HOPPER-HEATER

Hopper-Heater was formerly sold as an extra accessory item, but is now incorporated in the Standard Vibra-Veyor and Porta-Veyor combination. Heating of an injection molding machine hopper is very essential to prevent a drop of temperature and consequent re-absorption of the moisture into the plastic powder before it enters the machine. In Porta-Veyor, an insulated cover regularly protrudes from the front of the machine, properly spaced above the feeding trough end. An infra-red lamp controlled by its own rheostat directs the heat rays downward to keep the already processed plastic powder in prime condition for entry into your molding press. When Porta-Veyor is moved from one location to another this setting remains constant and never needs to be adjusted.

MACHINE ADJUSTMENTS

For each kind of molding material there is a preferred setting of Porta-Veyor easily met with the many adjustments incorporated. For example, acrylic resins require a horizontal trough with lamps set for high temperature. Cellulose acetate requires a tilted feed with more heat at first and less heat toward delivery end of trough. Ethyl Cellulose requires less heat at the beginning so as not to seal the moisture in and then more heat after the granules have been warmed.

Also, there is the local demand for a special setting for extremely humid atmosphere or operation in a cool building.

A readily adjustable gate under the adjustable feed hopper at the in end of the trough acts in conjunction with the vibrating trough to control the actual rate of flow under the regulated heat established by the lamps above.

MOISTURE REMOVAL

Past practice has been laboriously to heat the powder in pans, drawers, etc., in one part of the plant, not realizing that the mere act of allowing the temperature to drop makes the granules more susceptible than ever to reabsorbing moisture from the air even while being carried from one end of the plant to the other. Two features included in Porta-Veyor overcome this hazard: heating the hopper of the molding machine and removing the moisture the moment it is freed from the powder.

A gentle current of air is always flowing counter to the direction of the material flow; first, to bring in fresh dry air and second, to remove moisture laden air from the large chamber provided. This passes though a wide-fireplace type of chimney hardly noticeable in Porta-Veyor. The engineered air flow also prevents adhesion of any waste matter to the faces of the lamps (see new book by Thomas, Injection Molding and Plastics (1947) for further valuable information).

THE ADVANTAGE OF INFRA-RED HEAT

Miskella, Insulated, Angularly-Directed Lamped Panel is suspended with four combination lamp-saver shock-absorbers. The lamps are controlled by switches, each operating two lamps which

(Continued on Page 9)

INFRA-RED IN PLASTICS

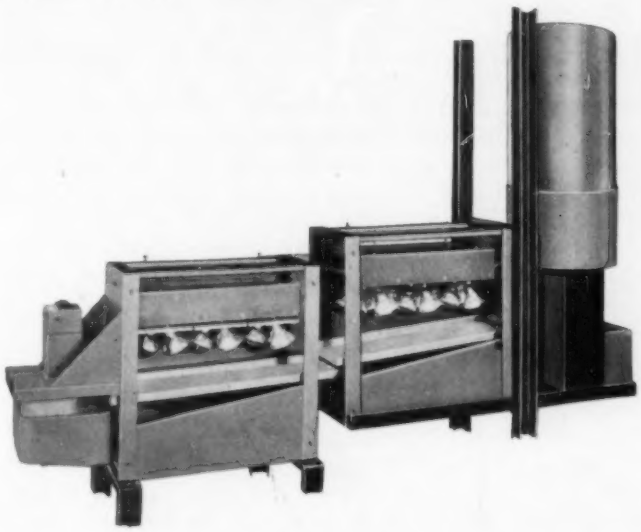
(Continued from Page 8)

makes possible heat of 500, 1000, 1500, 2500, or 3000 watts. Temperature range is from 70 degrees F. to 400 degrees F. with 250 watt lamps. An Auto-Transformer turns up or down heat from any combination of lamps to furnish perfect temperature control when needed. On a normal 230 volt circuit, voltage is raised to 270 volts with this instrument. (More voltage means higher heat.) 80 on your dial corresponds to direct connection to your line. Please note the temperature changes are made almost instantaneously.

Ten years experience with all types of heating and contact with plastic molders amplifies the great virtue of reflector-directed instantaneous heat against all other forms including hot air and resistance wire. Both of the latter are slow acting and not responsive to quick changes so essential in processing the many grades and types of thermosetting plastic materials.

The power to the vibrator trough is supplied by a noiseless vibrator pulsating at 3600 vibrations per minute (consumes only 45 watts). A dial control starts and stops feed instantly and regulates speed of flow at will. The heavy, stainless steel trough stores Infra-Red heat so material in process is heated approximately 90% from below and approximately 10% from above.

Located under out end of trough is a U bracket which varies the flow angle from a position parallel to lamp panel face down to a rather steep incline. Normal is about half way. More "tilt" increases pounds per hour. Less "tilt" causes more heat delivery.



When greater capacity is demanded, two Vibra-Veyors are placed in series or tandem arrangement. Granules fall from the first trough onto the end of the second trough to double the output. It is possible to convert a single Vibra-Veyor into a tandem Vibra-Veyor by ordering the necessary additional attachments.

(Continued on Page 16)

R. I. AND MASS. MEETING SCHEDULE

By FREDERICK P. STEARNS

The Fall programs of the Rhode Island and S. E. Mass. Section are to be as follows:

September Meeting: A talk on molding materials and possible applications for molded products by a representative from the Durez Company.

October Meeting: The Rhode Island School of Design is cooperating with the Section in presenting a program concerning strides made in the educational phases of the Plastics Industries. Several instructors will outline courses and subjects of study in industrial design and interior decoration.

November Meeting: Mold Design will be discussed at this meeting.

December Meeting: Equipment used in molding and fabricating processes is to be the subject of the lecture and demonstration.

January Meeting: This meeting should be one of the high lights of the Section's program. The program will center around problems in Industrial Design with the principal speaker representing the Van Duen Associates, one of the best consulting agencies in the Industrial Design field.

It is planned to hold the meetings in the Providence Engineering Society Building in Providence, R. I., istead of the Hotel Biltmore where previous meetings have been held.

PLASTICS FOR THE RETAILER AND THE CONSUMER

By PAUL L. REED
Past Chairman, Cleveland Section

One of the most successful projects sponsored by the Cleveland Section, SPE during the past year was a course on "Plastics for the Retailer and the Consumer" which was prepared and given by the Educational Committee for the Retail Merchants Board of the Cleveland Chamber of Commerce and the Cleveland Board of Education.

Th content of the course was worked out by the Educational Committee in cooperation with Paul E. Smith, Supervisor of Distributive Education, Cleveland Board of Education to fit the needs of the students who were employees of the company members of the Retail Merchants Board. Students included both men and women and were personnel selected because of a direct interest in one or more forms of plastics products bought and sold by retail stores. Personnel included buyers, assistant buyers, sales training instructors and sales people. Attendance averaged over 40 persons at the eight two-hour sessions held on the four Thursday evenings in February and March.

The basic plan of presentation was by panel discussion and demonstration. As far as possible members of the local section participated. However, a number of invitations were extended to material manufacturers, local and national molders, fabricators and merchandisers. The response was excellent and in several cases organizations sent representatives on special trips in order to participate.

Each speaker was invited to show samples and the result was that members of the class saw a wide range of raw materials, fabricated, molded, extruded, cast, machined and carved articles and rolled, spun and woven materials. While the emphasis was on products bought and sold by retailers, a number of industrial and technical parts were also shown.

In addition to participation in the discussions several organizations made available literature in quantity for distribution to members of the class. The Bakelite Corporation furnished "The ABC's of Modern Plastics"; the Plastics Department of E. I. Dupont de Nemours & Co. sent copies of "Plastics" (one of the series of educational booklets prepared for the American Association of School Administrators); the National Dry Goods Association supplied a reprint "Plastics" from the March 1946 issue of their "Bulletin" and the National Office, SPE provided copies of the January 1947 issue of SPE NEWS.

The Educational Committee prepared lists of sample questions for the use of several of the panels. However, since the class asked so many questions and the panel members had so many "rebuttal" remarks to make, the questions proved for the most part, superfluous.

Paul L. Reed, past chairman, Cleveland Section, acted as host for the speakers and as moderator for the lively discussions which developed.

The Educational Committee believes that the course is flexible enough to meet the need for basic information on plastics by business and industrial groups in other cities. The outline of the course indicates that the panel method of presentation insures a broad and diverse group of viewpoints. It certainly will, as it has in our experience, develop lively interest.

The Retail Board has asked that the Cleveland Section repeat the course again this fall.

Outline of Course

First Session—Introduction
- (a) Outline of the course (furnished to students).
- (b) Backgrounds of the industry.
- (c) Showing of film "Hercules Land" (10 min, color and sound) courtesy Hersules Powder Co.
- (d) Distribution of literature.

Second Session—Panel on Thermosetting Materials
- (a) Phenolics—Douglas H. Sanders, district representative, Durite Plastics, Inc.
- (b) Ureas—Ralph Perkins, Jr., Plaskon Div., Libbey-Owens-Ford Glass Co.
- (c) Melamines—I. B. Nathanson, Monsanto Chemical Co.
- (d) Cold Molded Materials—Hal B. Williams, district manager, American Insulator Co.

Each speaker had 20 minutes to discuss the characteristics of his type of material, its advantages in retail applications as shown by samples. Panel members had the privilege of questioning each other and of answering questions from the class.

Third Session—Panel on Thermoplastic Materials
- (a) Cellulosic Materials—Richard L. Huber, district engineer, Hercules Powder Co.
- (b) Acetate Materials—Karl W. Kithil, Michigan representative, Celanese Plastics Corp.
- (c) Vinyl Materials—Frank Kiefer, New York office, Bakelite Corp.
- (d) Polystyrene and Vinylidene Chloride (Saran)—E. Robert Haines, manager Cleveland office, Plastics Department, The Dow Chemical Co.
- (e) Synthetic Rubber—William H. Nicol, Plastics Research Department, Goodyear Tire & Rubber Co.

Procedure as in second session.

Fourth Session—Panel on Design of Plastics Products
- (a) Influence of Molding Techniques on Product Design—Richard D. Kidney, design engineer.
- (b) Influence of Materials on Product Design—William Johnson, production manager, Plastic Engineering, Inc.
- (c) Design for Beauty and Utility—Mrs. Phyllis Sloan, member of firm PDA, designers. Mr. Schewitz, also of PDA, illustrated Mrs. Sloan's remarks by showing a series of models which represented progressive steps in the redesign of a parcel post scale.

Procedure as in second and third sessions

(Continued on Page 12)

DETROIT REPORTS

By L. D. LAMB

The May meeting was held at the Rackham Memorial Building as usual. The unusual part being the attendance — a total of 105 members and guests — only a handful arriving after the dinner. The attendance was unusual in that this meeting was for mold makers and those interested in the metal side of plastics.

John Koons, Program Chairman, distributed two door prizes, then called on Dr. E. Storfer to bring those present up to date on the Prize Paper Committee. This is creating a good deal of interest and Dr. Storfer should be congratulated on his excellent selection of committee members. They are: Dr. S. McLain, Wayne University; Dr. C. W. Selheimer, U. S. Rubber Company; Mr. G. C. T. Lindh, Udylite Corporation; Mr. H. C. Haaxma, Standard Products.

Mr. Harlan Klema, Sales Manager of Gorton Machinery Company, was the speaker of the evening. His talk, The Brief, was excellent and very informative, on his company's duplicator, mainly. He also presented a half hour sound and color movie entitled "An Exact Duplicate".

Following this, came our regular, now, group discussion. The forum being headed up by John Mickey and practically everyone asking and answering questions.

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The ring-binders advertised for sale for one dollar are an unusual bargain. They are of first quality material, and will withstand hard wear. The finish is beautiful brown grain, with Society of Plastics Engineers stamped on in gold. These binders would be impossible to duplicate anywhere for $2.50.

Actually, the SPE will lose money on their sale at a dollar, but we have a large supply, due to over-ordering. So here is a real break for you; if you use or need price-books, data books, etc., in your office, or for your sales force, here is a chance to stock up on a top-quality product at a minimum cost. Or if you have children in school, they will be proud to use these notebooks, and unable to wear them out.

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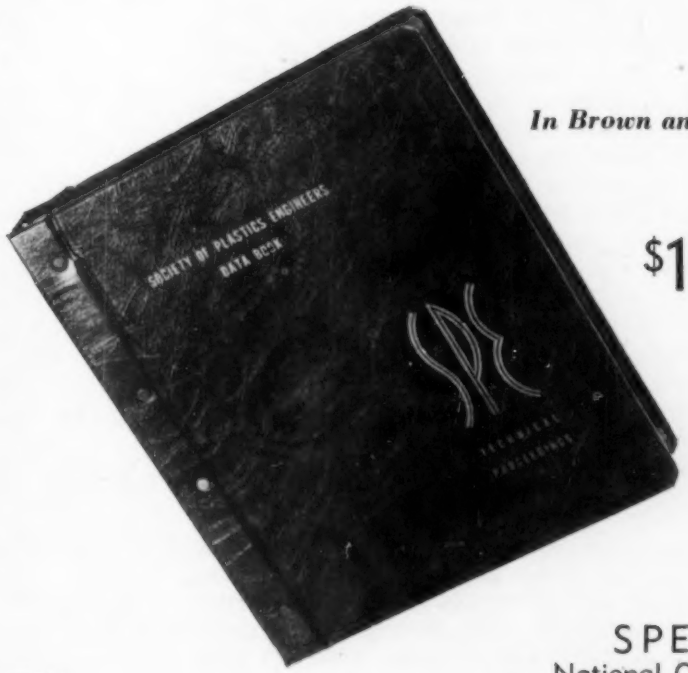

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Cleveland, Ohio

Cleveland History

(Continued from Page 5)

ming a pretty nurse, and wearing asbestos gloves, on the occasion of the donation. The formal presentation was made by W. H. Nicol, of Goodyear Tire & Rubber.

One of our projects in past years has been to undertake to furnish instructors for a course in plastics at the John Huntington Polytechnic Institute. The courses were started by Warren Prince, continued by W. Rupprecht, and concluded last year by Jesse Day. This year the course is being omitted, but we hope to continue it in the future. Another kind of course which also drew upon our membership for instructors and speakers was one arranged by Paul Reed, and offered as part of a forum on Retail Merchandizing here in 1946. While these ventures were largely sparked by men like Prince and Reed, our members did cooperate splendidly, and there is no reason why they cannot be continued, even though Reed is now out of plastics, and Prince has moved to St. Louis.

Our growth — or rather our consolidation — has not been without pains. We have got to look toward securing the ground we have gained rather than toward conquering new fields, and I think that goes for our national organization too. We have consistently tried to do too much.

There have been large changes in our membership from men moving in and out of town, leaving and entering the industry. Even death has taken its toll. Many will recall our hearty friend Dewey Kilgore of American Hard Rubber Co. and kind, unassuming Lloyd Britton of Ackerman Molded Plastics, whom we have lost.

Probably no single man was more instrumental in the history of the Cleveland Section than L. S. Shaw, president for 1944, and secretary in 1945. He had an unlimited energy, and certainly was a devoted and active member of SPE. We had our differences, but our debt to him is great. He started more activities than you can count, and did his best to poke up the rest of us into following through, a thing we did not always do, though we coasted on his impetus for a long time.

Looking backwards, I would say that as a section we have a great debt to men like Frank Prendergast, Jay Southwell, "Doc" Whitacre, Warren Prince, W. Rupprecht, and all of the numerous others who have since left town. It has been loyalty of men like Howard Nicol, Cliff Sauerwein, and Ward Van Orman who have often braved the boring drive from Akron to be present at directors' meetings. It has been men like Hugh Winn, Bill Johnson, Phil Bitton, Frank Martin, and others who had the staying power in the longer term race that have done the most for the section. I am quite sure therefore that we are entering a period of integration. The last of the original directors will be leaving office soon, and new men taking over. This is a good thing, for we have tended to rely too much on the same willing old wheelhorses. I do not envision a period of phenomenal growth for the Cleveland Section, but I do believe that we are going to make real progress, put on better meetings, collect our dues, and generally gather ourselves for the competitive period into which we are entering in business, and which will definitely reflect in the consolidation of our society.

I might mention one more thing. Originally this section was regarded as The Cleveland-Akron Section. It was our intention to hold every third meeting in Akron, as about ⅓ to ¼ of our membership is from the rubber town. Till very recently we did meet periodically in Akron, and our ballot still provides for proportionate representation from that city. Men like Marion Fate and Harold King and others did a great deal to make the Akron meetings a success. Let them now see that the tradition is continued!

Plastics for the Retailer

(Continued from Page 10)

Fifth Session—Plastics for the Home

(a) Showing of film "This Plastic Age" (30 min, sound and color) courtesy of "Modern Plastics".

(b) Paints, Coatings and Finishes—Ray Fulton, sales manager, The Glidden Co.

(c) Film and Leather-like Materials—Mr. Bendel, Firestone Tire & Rubber Co.

(d) Velon and Screening Materials—Mr. Lodge, Firestone Tire & Rubber Co.

Sixth Session—Apparel and Accessories.

(a) Showing of film "Tomorrow Always Comes" (fashion show women's apparel), courtesy American Viscose Co. and Princeton Film Center.

(b) Acetate Rayon Fabrics—Miss Wilson, retail promotion department, Celanese Plastics Corp.

(c) Plastics Materials and Hats—Mrs. Vivian Derhammer, manager, millinery department, Engel & Fetzer Co.

Seventh Session—Laminates in Retail Products; Packaging

(a) Showing of film "Proving Ground" (25 min, black and white, sound) courtesy Celanese Plastics Corp.

(b) Laminates for the Retail Trade—G. A. Morrell, district manager, Formica Insulation Co.

(c) Photographic display of packaging materials, courtesy "Industrial Plastics".

Eighth Session—Nylon and Rayon; Informative Labeling

(a) Nylon—what it is and how it is made; its uses in retail products; tests for nylon; care of nylon fabrics.

(b) Rayon—the viscose and cellulose acetate processes; outstanding characteristics; general classes of retail applications; tests for rayons, care of rayon fabrics.

(c) Informative Labeling.

(d) Review.

NATIONAL ADVISORY BOARD CONSIDERS CHANGE IN DIRECTOR ELECTIONS

A meeting of the Advisory Board of SPE was held at Rackham Memorial Building, Detroit, Michigan, on July 30, 1947. The purpose of the meeting was for the election of Officers, nomination of candidates for national directors to be elected in 1947, and recommendations to the Council on other matters pertaining to the Society.

The meeting was attended by representatives and proxies* for the following sections:

Central Ohio, L. E. Cheyney; Cleveland, E. W. Johnson; Detroit, D. F. Hofman and R. E. Spokes; Newark, C. J. Frosch* for I. Thomas; Springfield, J. H. DuBois* for G. Carlson; Toledo, G. W. Clark.

Nominations and election of officers for the 1947 Advisory Board for SPE resulted as follows:

Chairman, G. W. Clark; Vice Chairman, Islyn Thomas; Secretary, L. E. Cheyney.

Consideration was given to proposals regarding better representation of the sections on the National Council. Motions were carried unanimously as follows:

(1) "The Advisory Board recommends to the Council that the By-Laws be changed to provide for the election of one national director to represent each section—said director to be elected by his section's membership in accordance with the usual election procedure —said election to be completed by the first Monday of December."

The following additional suggestions pertaining to the election of directors are made:

(2) "The National director may or may not be a member of the local section's board of directors."

(3) "The national director be elected to serve a term of three years"; however,

(4) "It is recommended that the present national councilmen complete their respective terms of office before being replaced by new councilmen to represent those sections."

(5) "It is further recommended that the By-Laws Committee study the matter so that a procedure can be provided for retiring and renewing one-third of the Council each year."

For example, if recommendations 1 to 4 are adopted by the Council in 1947, the make-up of the Council in 1948 would be thirteen new three-year men, four present two-year men, and four present one-year men. This system will tend to change too many directors in three years. It is proposed, therefore, that three of the new directors serve one year, three serve two years, and seven serve three years according to chance drawing. Considering this possibility, the 1948 Council would consist of:

3 new directors to serve 1 year
3 new directors to serve 2 years
7 new directors to serve 3 years
4 present directors to serve 1 year
4 present directors to serve 2 years

It is understood that additions of new sections may increase the number of directors in the future, but without benefit of this make-up of the Council would be seven of each term.

Inasmuch as the foregoing recommendations of the Advisory Board were presented in writing to the Executive Committee of SPE which was in session at Detroit on July 30, this committee can direct by its action on these recommendations that:

(1) a copy be sent to each member of the Council at least fifteen days prior to the next Council meeting;

(2) the recommended changes in the By-Laws be voted on at the next Council meeting, requiring two-thirds favorable vote or eight of the twelve directors;

(3) such action, if approved, will become effective immediately and shall be announced to the members of the Society.

In the event that the foregoing takes place, the present system of selecting directors will become void. However, in case approval is not obtained for these changes in the By-Laws, it will be necessary to carry out the present system.

In order to provide for such contingency, the National Advisory Board considered the Society's membership and unanimously adopted at its meeting on July 30 the following slate of eight candidates for the election of four National directors in accordance with the present By-Law:

L. H. Amrine, L. W. Anderson, Chicago; M. W. Burkhart, L. E. Cheyney, Central Ohio; F. J. Donahoe, M. J. Petretti, New England; H. Spencer, E. White, California.

"The Advisory Board recommends to the National Council that the Executive Committee be changed to seven members with a quorum of four and that the By-Laws be changed accordingly."

See procedure under Item II re notification and voting.

The reason for this change is to get larger representation on the Executive Committee consistent with the increased size of the Council and of the Society and obtaining more ideas and more help thereby. It is considered that a quorum of four from seven may as easily be obtained as three from five.

The Advisory Board discussed the need of more careful scrutiny of members' qualifications for membership. It recommends that the National Credential Committee analyze the problem as to whether:

(1) the requirements as set forth in the By-Laws are adequate;

(2) the section credential committees and boards of directors are correctly interpreting these requirements;

(3) the proper screening and classifications of members are being obtained.

The Advisory Board members present unanimously feel that maintaining the integrity of SPE is of paramount importance in cooperative efforts with SPI or other societies. These members conveyed similar expressions as the sentiment in the local sections from which they came.

BUFFALO EVENTS

By NORMAN E. WAHL

The Buffalo Section of SPE held its second Annual Golf Tournament and Outing at the Brookfield Country Club on June 20th. Mr. A. D. Addario of Molds and Manufacturing Co., took first prize, with Mr. E. Borro of Durez taking second prize with the "largest" score.

Before dinner refreshments were served; presiding at the punch bowl were Messrs. Herb Spencer, Durez; Clark Simmons, Durez; Hy Nathan, Atlas Plastics; R. Jeeves, Durez; Cassidy of Durez and Vernon Howe of the newly formed Rochester, N. Y. Section.

After dinner Mr. Ken Duffes of Comstock and Duffes, Arvertising Agency, spoke on "Markets of the Future".

After a summer of vacations and siestas, the Buffalo Section of S.P.E. plans to swing upstream at full speed with President Ed Borro of Durez at the wheel and Chairman of the Program Committee Hy Nathan of Atlas Plastics stoking.

Mr. Vernon Howe of Eastman Kodak and Mr. Vernon E. Whitman of Graflex have a job in organizing new members in the Rochester area and are to be congratulated for their fine work.

All members of S.P.E. were invited to the installation of the Rochester Chapter at the Hotel Rochester on Tuesday evening, September 16, at 6:30 P. M.

The Buffalo Section held its first fall dinner and meeting at the Hotel Westbrook on Friday evening, September 26, at 6:30 P. M.

NATIONAL EXECUTIVE BOARD REPORT

Meeting convened in accordance with call at 9:30 a.m. Messrs. DuBois and Orr present. Mr. Robert Chollar was represented by Mr. C. A. Frosch of the Newark Section by recognized authority. Mr. Dailey joined the meeting later.

Mr. Orr reported for the Finance Committee and reviewed prospects. The signing of notes due the Chicago, Newark and Detroit Sections by the National President and Treasurer was unanimously authorized. Mr. DuBois reported for the Publications Committee. He reported on his plan for Sections to sponsor the SPE News beginning with the September Issue. It was reported that the sale of Ring Binders to individual members would be pushed in the SPE News. Mr. DuBois urged that the SPE News be mailed to a selected list of advertisers.

Mr. Orr reported for the Membership Committee. He reported that 379 new members had been admitted so far this year as against 366 for the entire year of 1946. The current membership number is now 2012 which is the last number on Council Letter Ballot No. 22.

Mr. Orr showed the proofs of the New Charter being engraved for all Sections. This proof was approved. Mr. Orr showed the proof of the New Membership Brochure. This was approved. Both of these items will be available in August.

Mr. Orr reported on National Dues Delinquency which stands at 18%. He presented the following analysis of Dues Delinquency by Sections as follows:

Buffalo, 11%; Central Ohio, 13%; Chicago, 12%; Cleveland, 34%; Detroit, 18%; Eastern New England, 0%; Indianapolis, 33%; Miami Valley, 25%; Milwaukee, 62%; Newark, 15%; New York, 12%; N. W. Pennsylvania, 15%; Philadelphia, 5%; R. I. and S. E. Mass., 0%; St. Louis, 20%; Toledo, 11%; W. New England, 9%.

Mr. Orr pointed out the excellent section leadership in those sections that are far below the National Average. Good leadership and good programs mean good sections.

The Committee discussed the addition of new sections during the fall of 1947 and made authorizations for sections at Twin Cities, Pittsburgh, Baltimore-Washington, Atlanta, Bridgeport, Dallas-Ft. Worth, Houston, San Francisco, Seattle, and others.

Motion was duly made and carried to recognize the formation of new Sections as follows:

Rocky Mountain Section as of.... July 1, 1947
Southern California Section as of.. July 1, 1947
Mid-Continent Section as of..... July 1, 1947
Rochester, N. Y., Section as of.... Oct. 1, 1947

The report of the Speakers Committee was received and inspected. The Chairman of this Committee was congratulated on a most excellent piece of work. Mr. J. O. Reinecke of the Chicago Section is Chairman of this committee.

Mr. George W. Clark, Life Member of the Toledo Section, the Chairman of National Advisory Board, and Dr. L. E. Cheyney, Secretary of the National Advisory Board, Central Ohio Section, reported for the Advisory Board. The Advisory Board was thanked for its earnest efforts in behalf of SPE.

Upon motion duly made, seconded and carried, the By-Law Committee was instructed to prepare By-Law Changes for consideration at next meeting of the National Council pertaining to new method of selection of National Directors as recommended by the Advisory Board.

Mr. R. G. Dailey reported for the National Meetings Committee. The executive committee met with Mr. Dailey's committee for consideration of the Sixth Annual Meeting and Exhibit. The following determinations were made:

The Exhibit would be confined to the Rackham Memorial Building.

Admission will be open to Members, to others by invitation.

The meetings will begin January 21st and close January 24th, and will be held in the smaller auditorium. The Annual Meeting will be held on Friday, January 23rd, 1948, at 11:30 a.m. No banquet will be held.

Technical Program will be held from 9:15 a.m. to 12:15 p.m. on January 21st through January 23rd.

Exhibits will be open from 1 p.m. to 6 p.m. on January 21st and 22nd. From 3 p.m. to 10 p.m. on January 23rd. A movie display will be held.

The following Committees were announced for the Sixth Annual Meeting and Exhibit:

General Chairman, R. G. Dailey; Vice Chairman, Phil Robb; Publicity, Dick Walsh; Registeration, Carl Whitlock; Hotels, Paul Lillis; Secretary-Treasurer, Anthony D'Agostino; Program Publication, John Finn; Educational, E. W. Tillotson; Exhibits, John Koons, Chairman; Don Hofman, Vice Chairman in Charge of Operations; Reception, Karl Kithil; Speakers, Carl Frosch, Chairman; Gunnar Lindh, Vice Chairman.

Mr. James Turnbull of the Plastic Materials Manufacturing Association was heard concerning SPI-SPE cooperative efforts.

Mr. Turnbull pointed out that SPI was proposing new Associate Non-Voting Memberships which would carry with them engineering membership privileges. Further that SPI proposes to dominate all engineering activities in the plastics field. He predicted competition between SPI and SPE.

Mr. Turnbull was informed that SPE would always cooperate with any other organization for the good of the entire Plastics Industry. Our dealings with SPI have been in good faith. The SPI Board rejected the findings of the Joint Committee without valid reason. The feeling of the SPE National Council as expressed at Chicago is that there should be no "Shotgun wedding" between the two organiaztions. The National Advisory Board also feels that the integrity of SPE should be maintained.

Mr. Turnbull was thanked for his sincere efforts and advised that the National Council would give further consideration to the entire problem at its next meeting.

The meeting adjourned at 5:05 p.m.

Thomas E. Orr,
National President.

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A NEW INFRA-RED OVEN FOR VINYL-CHLORIDE AND SIMILAR RESINS FERMULATIONS

By JOHN HANSON
The Miskella Infra-Red Company

It has been generally assumed that parts in process in Infra-Red Ovens must be carried through on a conveyor, but with the new Rack-Tub as shown in Figure A, such is not the case. The heat billiards back and forth in a million directions within a barrel or a "tub" lined with infra-red lamps and with highly polished reflective chrome plated steel. As a result, the price is low and the floor space occupied is only one square yard.

Most remarkable, however, is the ability to get 400 deegrees F in approximately ten minutes, which means the plastic coating or paste will positively convert at the temperature required. Much of this material today is being used by electroplaters who do not have any way of baking these coatings high enough with the result they are not properly applied. Such a coating if improperly applied to a plating rack might resist for a few weeks, but if heated to the correct conversion point would last indefinitely — even as long as the metal rack itself.

Recent developments in plastic resins such as ARRIZAN, MARVINOL, SARAN, TYGON, GEON and VINYLITE has remarkably simplified stop-off operations for rack coatings. The following advantages have been proven:

(a) The plater may now simply and quickly process his own racks in his own rack department without having to send them out — often to another city. Consequent damages to hooks and coatings and transportation costs are eliminated.

(b) A thick coating approximating 1/8" is scientifically applied, usually in only one dip operation.

(c) Stopping-off the electric current so no metal is deposited on the racks means a saving in current, lower maintenance costs and the directing of 100% of the anode to the work being plated.

These rack coatings offer complete resistance to strong alkalis, concentrated acids and oxidizing agents such as chromic acid. Being pliable and rubber-like they are less likely to be damaged due to use and rough handling. Above all, they have a very long life, when properly baked.

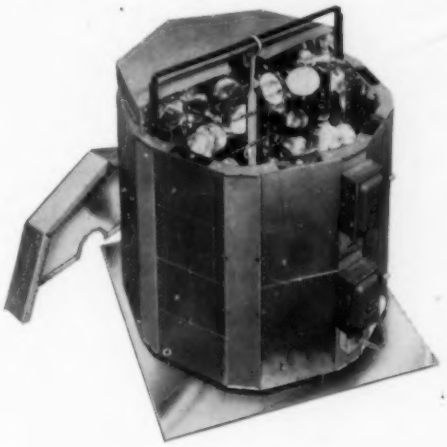
Rack coatings are compounded from some of the above resins which require baking around 350 degrees F. — any heat below that recommended by the coating manufacturer will result in very poor dielectric resistance, short life and contamination of plating solutions. (Names of coating material manufacturers furnished on request.) Proper baking procedure will prolong frequent and repeated stripping and re-coating operations on the same set of racks. Air dry coatings have their place, but can never be equal to these which are processed in Rack-Tub.

INFRA-RED BAKING

This method is a "perfect natural" for applying rack coatings, since the heat is first stored in the metal rack and therefore causes the baking to be done from the inside out. (In gas, steam, and electric oven, the air within the oven must first be heated, which means the baking is done from the outside in.)

THE MISKELLA PROCESS

Subject, of course, to the specific recommendations of various compound manufacturers, Miskella offers these suggestions:



(1) Before applying the primer, preheat the bare rack in Rack - Tub for a few minutes. This causes the pores of the metal to expand ready to grip the primer tightly. A gallon of primer will cover more racks than it will when applied without preheating.

(2) Bake the primer for 5 minutes at the low heat setting of Rack-Tub, around 200 degrees F.

(3) Once more preheat the primed rack and dip it in the heavy, unreduced thermoplastic coating material of your choice. Withdraw rack very slowly taking approximately 2 minutes for each rack dipped. These preheat and

(Continued on Page 16)

TOLEDO SECTION NEWS

By A. E. GIESLER

The first fall meeting of the Toledo Section came with a record turnout. Peering in on the table chatter we find some of the fellows still reliving the golf at the recent Section golf meet.

The meeting this time was held at the Owens Illinois Glass Company clubrooms on Sept. 17th.

The feature of the evening was a talk and demonstration given by Mr. Fred Cammanns Jr., of the Clinton Machine Company. The subject was Metal Disintegration. There has been a considerable amount of interest in the newly developed machine. With the production of dies and jigs in the plastic industry, there comes the problem of removing broken taps, drills, bushings and many of the toolmaker's headaches. The demonstration was brought out very well with practical samples donated by the members. In addition to the metal disintegration it was showed how the machine could do welding and etching operations.

Future plans indicate that more demonstration types of meeting will be held. A buffet lunch was served.

Infra-Red in Plastics

(Continued from Page 9)

This method of increasing the capacity can be carried out to include any number of standard unit machines each based upon a capacity of 70 pounds per hour using cellulose acetate as a basis. Therefore, two units in tandem will preheat or dry 140 pounds, three will handle 210 pounds and so on. There is now being planned a battery of 24 of these machines in one installation.

Should you desire to take advatage of the portable up and down drum feed of Porta-Veyor, all of the tandem connected machines, except the last one, would be installed permanently with only the one carrying the drum feed attachment arranged to be removable for servicing, refilling, etc.

In many locations there is not sufficient floor space for the tandem setup, so vertical stacking is offered as a perfect solution. Any number of the units may be piled one on the other, each delivering its 70 pounds per hour into the reverse unit underneath. The height of a unit is three feet, so it may be necessary to arrange for feeding from the floor above.

Due to the more exact moisture removal requirements for extrusion molding, the unit capacity is reduced to 35 pounds per hour. Special machines of large capacities can be built for higher temperature powders.

The old theory of one preheater for each molding machine no longer applies. Not only is such an investment unwarranted, but it is impractical. Porta-Veyor enables the molder to move a job in its entirety from one molding press in his plant to another almost instantly. Just pull the truck away from the press in use, lower the drum and wheel Porta-Veyor over to the new location. Once the drum is re-elevated and the base locked in place, the new setting is ready to function. One might have a Porta-Veyor for each kind of material to be processed. Please note the standard Porta-Veyor works perfectly with all makes of injection molding presses including HPM, Reed-Prentice, Lester, Watson-Stillman, Fellows Gear, Giddings & Lewis, etc. Porta-Veyor feeds directly into the hoppers included with each of these machines without in any way altering their basic design.

The new Porta-Veyor delivers plastic powder heated just below the plastisizing point direct to the molding machine hopper. Result — much greater delivery of perfect parts and consequent shortening of molding cycle. No longer is it necessary to regrind rejected parts due to moisture defects. Exceedingly important is the proper feeding of all types of plastic powders and granules without separating out the fines. There is no waste whatever. To run batches of plastic powder, omit the drum and place the material in the 100 pound capacity drum funnel which serves to keep a constant supply of powder in the adjustable feed hopper. Porta-Veyor is a combination of Hopper-Heater, Insulated Hopper-Cover, Vibra-Veyor, portable floor truck and drum elevator available in one complete machine.

Infra-Red Oven

(Continued from Page 15)

withdrawal operations are exceedingly important. They allow a very thick coating of the material to reach all crevices visible and invisible. Here, too, you get more racks per gallon, since there are no drips or tits. The complete baking time is 10 minutes at 350 degrees F.

(4) Miscellaneous suggestions:
- (a) Aluminum racks must be anodized.
- (b) Steel racks must be copper plated.
- (c) Expose the contact points with a sharp knife after all baking is done.
- (d) Thoroughly clean off grease and scale and follow with a copper flash coat. (Some platers prefer to add also a nickel coat at this point.)
- (e) To make a repair of one or more hooks, preheat the entire rack in Rack-Tub, apply the patching material with a small spatula and bake to 350 degrees F. This will make a perfect union between the old and the new coating materials. (Spot

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ST LOUIS PLANS MEETINGS SPONSORS PLASTICS COURSE

By J. MAVER FEEHAN

Meeting Sept. 24, 1947. A dinner meeting at 6:30 P. M. Melbourne Hotel. Speaker: Mr. Warren V. Prince of American Molding Co., St. Louis, Mo., who discussed "Misapplication of Plastics". Mr. Prince is now a member of the St. Louis Section and will be remembered for the numerous articles on plastics he has published.

Meeting Oct. 22, 1947. A Symposium beginning at 8:00 P. M. No dinner, but with refreshments following the meeting. Four members of the St. Louis Section have agreed to take part in this symposium and an evening of free and frank discussion of parts in production is promised. Those taking part will be: C. Todd Clark, Director Plastics Development, F. Burkart Mfg. Co.; J. Kenneth Craver, Plasticizer Coordinator, Monsanto Chemical Co.; A. J. Koller, Pres. Koller-Craft Plastic Products, Inc.; Thomas J. White, Pres. Thos. J. White Plastics Co.—all firms located in the St. Louis area.

Starting Wednesday evening, Oct. 8, 1947 and continuing for 8 successive Wednesday nights, the St. Louis Section will furnish lecturers for a Board of Education sponsored adult education group to consider and discuss "uses and abuses" of Plastics. Object is to get into this class retail sales personnel, buyers, and others who must sell plastic items to the consumer. Classes will run from 6:15 to 8:15 P. M. and will be held in the Assembly Hall of the Board of Education Building. This is a downtown location, easily reached from the shopping centers where most of the people who will attend the class are employed. We feel that this is one definite way that S.P.E. can be of value to the community.

Injection Molding

(Continued from Page 1)

the rim of the piece which acts as a runner, leads the material around the outer edge of the piece and seals off the cavity from the parting line so the remaining gas or air cannot escape. This preseal can also be eliminated by an increase in the wall section of the molded piece, if price permits, or by the use of a blind runner in the form of a rib or ribs inside the piece. Blind runners, however, sometimes cause sink marks to appear on the outer surface when the job is run at the original cycle, and are most often not permitted by the application requirements of the molded part. The next step to take is to secure the correct filling rate and filling pattern by balancing gate size with temperature and pressure, and speed of the injection ram. Unfortunately no fixed rule can be given. I have seen both large and small gates, fast and slow fill rates, high and low pressures all work in innumerable combinations. One of the things to try, however, if permitted, is to secure a change in the grade or hardness of the material, the softer grades often giving better results where this type of burning or weld is found. While there is no definite answer, I believe it is now quite possible to mold around a pin or into a solid cavity around a core with good results, provided one has the necessary perseverance, and tries all combinations of gate sizs, temperatures, pressures and ram speeds. I might add that I cannot recall a single instance where I have seen this problem solved by a scratch type of vent located at the weld, for the weld will wander as process factors are changed. Neither have I seen the problem solved by the use of an overflow pocket similar to that used in die casting, to take out the cold front material. Area vents a few thousandths deep and several inches wide have sometimes helped, but the most benefit seems to be secured by an increas in wall thicknss of the molded part, permitting the material to retain more of its heat and giving the molder more control of the flow throughout the filling time of the cavity.

Another of the still unsolved problems of injection molding is the successful (and permanent?) removal of static electricity from the molded parts which causes soot, dirt, and lint to be attracted to the part, and to disfigure it and make it look shoddy on retail display. Wiping in the store of course simply recharges the part and it dirties itself quickly again. The problem has seemed remote from the molder, because all too many molders never look beyond their plant into the store and into the users' homes. The use of a fine salt spray which produces an ionized atmosphere in which the part may be held till the molding static discharges itself is the only method I have ever observed of eliminating this objectionable static. There are other methods of removing static used in the paper and other industries, but none have been investigated for this particular application, to the best of my knowledge. Molders are reluctant to add another step, another operation, but I frankly believe that in many applications the removal of static from the new molded part will be forced on the molder by customer demand. I have seen some all thermoplastic toilet seats and radio cabinets and trays in retail stores which were no credit to the industry: the soot stood in magnetic flow patterns upon them, and they looked dull and second hand already.

I know of no single factor in the injection industry which is more a matter of opinion than gate size. While there is a trend to larger gates (larger openings for the plastic to flow into the molded part) I know of not a few cases where a definitely superior product has been obtained at an excellent production rate by the use of a gate so small as to seem entirely inconsistent with all our rules of thumb and past experience. The reason the beneficial results of tiny gates are so seldom explored fully is that the first thing that is done on a die run-off is to enlarge the gates. Usually the injection machine is barely warmed up, and does not even itself out for production, and results are judged, perhaps prematurely, from samples run under wholly a-typically mold-conditions: those of the injection machine start-up.

Once the gate is enlarged it is difficult to decrease its size, so maximum possible benefits from the use of the smallest practicable gate are seldom observed. As equipment manufacturers we naturally tend to urge the largest possible gates, but I must record the fact that I have seen some of the best molding I know of done with gates scarcely thicker than a piece of flash. Small gates are one more paradox, one more alternative for the molder to try when nothing else seems to work, even on heavy sections. I personally discount the theory heard some years ago that the material picks up additional heat — the heat of friction — by passing through a restricted gate, but I have observed that the speed with which it enters the cavity through a small gate prevents the formation of definite cold fronts, and as result the succeeding waves of material are more closely knit, and show less strain as seen by polarized light, than where a large gate is used though there are definite exceptions I know of to this rule. The mention of plastic knit in the mold leads us quite naturally to another problem of growing importance.

Hair marks, or crazing is a defect in the molded

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Injection Molding

(Continued from Page 17)

part which has been cropping up rather frequently of late. Whether caused by striations due to included flow marks which weather out in time, to a marking of the plastic in rough or unmatched sprues runners and gates, and to the plastic memory of the mark being retained to show up sometimes months or years later, I do not think is definitely known. The use of too widely separated grades of hardness in securing mottles so that fusion is imperfect will also cause the same trouble. Sometimes rough or careless trimming or breaking off at the gate will cause fine radiating hair marks almost invisible at first, but which months later fill with dirt and become unsightly lines on the molded part. Perhaps too cold a molding temperature causes these marks to appear. Perhaps above, it may be a matter of gate size, or perhaps it may be insufficient dwell time in the plunger forward position till the gate and the part is well set all the way through which causes an internal strain between the quickly-cooled surface and the slowly-cooled inside of the part, leading to subsequent separation and surface cracks.

At any rate, the chief difficulty with hair marks is that they occur long after the article has been in use. I think specifically, for example, of a molded spoon at home, and of the steering wheel ball-grip on my car. Surface crazing is a problem where the answer will probably be found in a combination of things, including gate size, injection temperature, and injection ram pressure and speed. It is a problem that the far-seeing molder will not neglect. I do not believe accelerated tests will reveal much about these marks, for it is only in aging under actual conditions of use where dirt is present that they appear markedly. It may also be that crazing is a property of the material, and that changes in compounds must be made to provide a more stable material, in which case the problem is one about which nothing can be done directly by the molder.

The day of molded thermoplastic junk seems about done. Few if any of the good newer jobs can be merely shaken off the runners into a barrel and shipped. Not only are decorating and finishing and assembly on the increase, but it seems that more plastic is being used in a part of a given size than ever before. Recent jobs have thicker wall sections and seem to be scheduled for molding at longer cycles than the same type of jobs engineered two years ago. These are fortunate signs indeed, but is it possible that I seem to observe them mostly among concerns relatively new to the injection business? Quality can only be molded into a part by using that extra couple of grams of material, not skimping it to save a penny. Quality in the molded parts comes from molding it at a cycle which permits not only thorough plastification of the material in the heater, but also allows maximum setting time in the mold. Up until this year I think it can be safely observed that molders have often been too concerned with production records and quick profits rather than quality, durability, and with seeking out applications where the price will justify these latter factors. The trend should not be surprizing: if it had not started, thermoplastics would never in the world be preparing to stage a comeback in the public favor.

I recall an incident during the war that presaged what I mean by quality molding. A contractor called me in and asked me why some of the fuze tips he was getting were 100% satisfactory under test, and why others failed (the implication being of course that he would buy a machine and mold the parts themselves). I told him that I thought the fuzes which were failing were from different sources, and that some of the subcontractors were trying to trim up to 1½ or even 2 minutes off the molding cycle, for the part was a heavy section, to try and make the job yield a higher rate of profit, or to overcome errors in their estimates. Cutting the cycle resulted in soaking the material in the heater for a shorter time, in the need for a much higher heater temperature, and of course a shorter holding time in the mold. Samples from the various sources without exception proved that the fuze tips molded on the shortened cycles failed in the hammer or set-back test — that is, they came apart at the structural welds inherent in the injection process. The matter of gate size, (and several sizes were used) did not seem to have a great deal to do with the problem: it was plainly a matter of time. I did not sell a machine, but I got a good glimpse of what quality molded plastics would stand under extreme conditions. Other

(Continued on Page 23)

Brown is Promoted

Michael A. Brown, Jr., former divisional sales promotion manager of Monsanto Chemical Compaiy, author of several articles on different phases of plastics and co-author, with John Sasso, of the authoritative book on the plastics industry, "Plastics in Practice", has been appointed Assistant Publisher and Editor of "Plastics" Magazine by William B. Ziff, Chairman of the Board of Ziff-Davis Publishing Company.

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NEWARK PREPARES FOR ACTIVE FALL SEASON

By EDWARD G. ACKERMANN

The first Fall meeting of the Newark Section is to be held the second Wednesday of the month, October 8th. The meeting to be held at the Newark Athletic Club, will be addressed by Tom Orr, our National President who will discuss the advances made and future plans of the SPE. Also on the list of speakers for the meeting will be a number of our National Committee members who will have fifteen minutes each to discuss technical matters dealing with their individual fields in the plastics industry. All in all, it looks as if it will be a grand start to a "five-star" schedule of speakears which John Currier has lined up for the coming year. A complete list of meetings and speakers as well as social events will appear in next month's column.

The SPE Prize Paper Contest is going along well and if anyone is planning to turn in a paper and does not as yet know of the full details, it is suggested that you contact Carl Frosch at Bell Telephone Labs, SUmmit 6-6000. The deadline for Newark Section entries in this contest to stimulate constructive and original thinking among youg plastics engineers, is October 15th. Local prizes as well as the National prizes are well worth the effort.

December 1947 is the issue of the SPE News which the Newark Section is to sponsor. Everyone's cooperation is invited in submitting articles. If you have something which you think will be of interest to the membership of the SPE it is urged that you contact Ed. Ackerman at Chemaco Corporation, SUmmit 6-6100. It will be impossible for everyone to be contacted in regards to solicitation of advertising for this particular issue so if you feel you would like to support your section and society along these lines you may do such from anywhere in the vicinity of $10.00 to $120.00

The Newark Section through the National SPE can if we will be a strong, progressive force. Most trade groups, like most companies, started in a small way. They were formed for a specific purpose or to meet a specific need. Our SPE is no exception. However, cooperation of all concerned is needed — and urgently solicited. There are numerous ways in which all of us can help in promoting the interchange of know-how and thus insure industrial progress in the plastics industry. There are many committees which need help and progress is much faster when the weight is divided evenly.

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Professional Activities

(Continued from Page 4)

follow-up on the consideration of these methods and their consideration by industries within our scope.

* * * *

Mr. G. J. Wilson, Chairman of the Chemical Investigation Committee, has submitted to the local sections a proposal for a program based on the following fields:

1. A field survey to determine the scope of chemical work necesary and justified.
2. A literature survey to consolidate all 'tools' and methods involved in chemical investigation of plastics.
3. Establish, wherever necessary, procedures for qualitative analysis, procedures for molecular weight determination, acetyl content, polymerization degree, plasticizer type and content, etc.

The first move was to obtain a general opinion among section members where the first move should be one of literature search and bibliography compilation in the above listed fields and other fields suggested.

Of the fifteen S.P.E. locals to whom the proposal was submitted, nine replied.

Mr. Wilson feels that the following conclusions are important from the response of the local sections:

1. There should be no conflict between chemical investigation activities of S.P.E. and other organizations, particularly A.C.S. and A.S.T.M
2 Literature survey and bibliography compilation should be initiated first.
3. There is sufficient interest registered in the chemical aspects to warrant the activity of the chemical investigation group.

Of the Molding Technique and Product Design Committees, no progress report can be made at this time as neither Chairman Totten nor Hill have submitted a report of their committee's functions.

The Tool Design Committee finds itself without a chairman at this point, as two weeks ago Mr. Dailey submitted his resignation. The selection of a new chairman is now under consideration.

It is obvious that although there is activity in the committees that the participaion by local sections has been very disappointing. Mr. Chollar recalls the extreme lethargy of the members of S.P.E. reported by Mr. John Mickey, last year's Chairman. Mr. Chollar is inclined to agree with Mr. Mickey's analysis of the situation, although admitting that a considerable reflection can be made on the National organization of the Professional Activities Committee and Sub-Committees. The lethargy may be due to one of several reasons:

1. As is evidenced by comments in a majority of returns, the need for settling the technical coordination of S.P.I. and S.P.E.
2. The apparent lack of technical interest within the local sections amongst the membership.
3. Lack of interest from the local directors in participation in National functions.

Whatever these reasons may be, the National program will continue and every effort will be made to develop more completely the National programs now in effect even though participation from local sections may be a minor part of the program. It must be recalled that a prime purpose of any National committee is to act as a 'clearing house' for the ideas and actions of the local memberships.

The writer would like to suggest that at this Directors' Meeting, the representatives of the local sections be requested to participate in consideration of all efforts of the National sub-committee chairmen by carefully anaylzing the written suggestions made to the local sections.

The Professional Activities Committee has initiated its this-year's efforts under the impression that S.P.E. is a society of individuals. It is only through the efforts of the individuals that this type of program can be pursued effectively.

ACCESSORIES FOR THE INJECTION MOLDER

By LARRY HAHN

[1] *Injection Molders Supply Company, Cleveland 1, Ohio.*

As recently as two years ago, the assembly of all the necessary equipment for an injection molding plant was a haphazard matter. The molder did not know exactly what to buy or where to buy it, and often had to improvise driers, mold heaters, etc., which could scarcely be called efficient. The Injection Molders Supply Company was formed to make a thorough study of the specialized accessories needed by the injection molder, and to gather them all together so that they could be secured from a single proven source. One of the main objectives of the company was to get information from the molders back to the manufacturers of the various pieces of equipment so that this equipment could be fully adapted to the molder's increasingly specialized needs.

The modern plastics granulator is a good case in point. Many products were granulated long before plastics entered the picture: materials like cotton flock and tobacco were handled in machines with large cutting chambers designed to accommodate the bulky material. When thermoplastics were developed, the conventional grinder proved only partly satisfactory, for the average grinder with the large grinding chambers would not discharge the new materials fast enough, and the plastic would soften from the friction of grinding and plug the screens. One manufacturer developed a water-cooled jacket to overcome the difficulty, and still another designed an entirely new grinder with a small, compact cutting chamber especially designed with thermoplastics in mind. Ease of cleaning also became a factor in grinder design where it was no particular problem before the demand for a plastics granulator developed. Angle hoppers to prevent splashing were an outcome of the manufacturers observing their granulators in actual use. And today we are trying to convince grinder companies of the need to increase the throat size of the machines, to provide a dirt and splash proof discharge receptacle, and to take steps to reduce grinder noise by the use of rubber mountings and mastic coatings of certain parts which now act as sounding boards, especially when the grinders are located in the molding room next to the injection machines as they now often are. Individual machine grinders cost approximately $450 complete with motor, and larger grinders cost $750. and $1150, complete with motors. While grinders are usually rated in pounds per hour still the most reliable guide to the proper size of grinder is the size of chunks it expected to handle. Even the best grinder will not stand up if it is required to take chunks of material too large for the knives and bearings to stand.

Another contribution was in the perfection of a feed chute magnet. A survey showed that nearly 60% of all injection machines were made by one manufacturer, and that the feed mechanisms were nearly all standard, and this permitted the development of a magnet to remove tramp metal from the material as it dropped from the feed mechanism to the feed cylinder. Tests proved a maximum power magnet was needed to reach clear through the stream of falling material, and a new, more powerful magnet was designed which would fit about half the standard injection machines in this country. With certain alterations the magnets can be made to fit other machines, but the engineering expense due to the great variety of designs in the remaining 40% of the injection machines makes the installation of feed chute magnets unfeasible for us as a supplier. Very often, however, the molder himself can adapt a standard magnet which we furnish on a rectangular plate approximately 3″x5″, or to a sketch. The new super-power magnets for the typical Reed Prentice machine cost $35, and the 3″x5″ magnets for adapting to other makes and models for installation by the molder himself cost $40.

In the early days when oil filters first made their appearance, several were blown up, and much necessary extra piping was required to be furnished by the molder to adapt the standard filters to his machines. Today, however, a line of standard super duty all steel filters are available, with built-in relief valves and all necessary parts to facilitate easy installation. Experience shows that properly filtered oil can be used almost indefinitely in injection machines, provided it is never accidentally over-heated by forgetting to turn on the water for the cooler, or provided an excess of moisture (over 2%) is never present, as from, say, a leaky cooler. Many molders are putting on filters because down time due to hydraulic troubles can be almost completely eliminated by their use. Hydraulic oil troubles include excessive wear of valves and pumps, sticky valves due to the objectionable presence of too much moisture of condensation, and emulsification of oil caused by overheating, too low oil level, use of some of the poorer (cheaper) grades of oil (a false economy), and to the presence of moisture accumulating from sweating of tank walls from normal temperature changes.

Two models of filters are available, and both are widely used. One is piped into the individual machine hydraulic system, and works continuously on a small portion of the oil. This unit costs $144 complete with 3 extra refills. Installation is very simple, and refills need be changed about two to three times a year. Refills cost $6.50 each. The other model is a larger portable filter piped periodically to the oil reservoir of each machine, and allowed to run about 24 hours out of every 60 days on each machine. Production is not interferred with. The portable unit complete with rubber-tired dolly, pump, and all neces-

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sary hoses, and two extra refills costs $611.50. Refills cost $16 each. In either model, it is easy to know when to change the filter element because when this is necessary the pressure on the filter gauge goes over 60 pounds. Molders are divided in their opinion about which model of filter to use, but are most often guided by the number of machines to be serviced. Either filter ends hydraulic oil trouble and eliminates the necessity (and expense) of annual oil changes. Both models with proper arrangement can be used to salvage and rectify for re-use spilled and waste oil, providing a marked saving over the previous practise of throwing leakage away.

Today many molders do not know their final plant layout plans when new machines are installed. To make injection machines readily portable, to silence them, and to prevent the need for elaborate foundations and grouting, with the attendant problems of installing hold down screws and shimming for level, advanced shops now have all their injection equipment mounted on steel covered compressed cork pads designed for this load. The use of these mounting pads cuts hours from the installation time and provides a firm, self-levelling, permanent, vibrationless, and non-walking mounting at low cost. Pads for a typical 10 ounce injection machine cost $76.50 per set, and other sizes vary but slightly from this figure.

Old style ovens and driers in present use have the disadvantage of not providing a continuous source of super-heated material for the injection machine. Each tray-full of powder varies as much as 100° from the time it is first dumped into the hopper until the last of that particular tray-full reaches the feeding mechanism. Temperature and pressure must often be adjusted to accommodate this variation. A new preheater which delivers a constant stream of superheated granules to the feed mechanism is taking the industry by storm. The unit is compact, rugged, and easily installed, and moreover it is easily cleaned when changing colors. Amazing results have attended its use, and it is one of the few accessories which bears the distinction of having been fully proven before being offered for sale.

Cycles have been cut as much as 20-30% because the material being fed to the heater by actual surface pyrometer measurement approaches an constant 160°. Not only in increasing production, but in cutting rear heater temperatures and so preventing burning on fast cycles, as well as increasing machine capacity, has the new preheater proven a godsend to many molders. Especially in the cases of saran and vinylite and geon has the unit proven valuable on this point, permitting the heater to be run at a lower (and safer) temperature, and giving the material more time to soak up heat, helping to eliminate the familiar dull spots found in elastomeric molding. The unit, however, is not a cureall, and we have seen a few cases where its application produces results which can be duplicated with any good oven or drier. But in most instances, the expense of the preheater has been quickly amortized in increased production of better molded parts, in longer heater life, and in slight increases in machine capacity to give maximum production on capacity jobs. The preheater will fit most standard makes of injection machines, but make and model should always be clearly specified to permit fabrication of proper supports. Prehaters for 4 to 16 ounce machines cost $895, while for the 22-32 ounce size, the price is $995.

Mold temperature is now recognized as being of great importance in obtaining maximum production from injection machines. With the development of a double tank circulator it is now possible to control temperatures in both halves of the die indepndently and more closely than ever before. The modern circulator uses hot oil as a heating medium, and is entirely self-contained, consisting of a tank, or tanks, pump, and thermostatically controlled heating elements. A double tank circulator costs $550, and single tank model costs $350.

With the increasing use of styrene many molders are looking for a refrigerating unit to chill the mold. The earlier development of such a unit was delayed by the scarcity of compressors and fractional horsepower motors, but refrigerating units for die cooling are now available at a cost of $595 each, capable of removing sufficient BTU's to accomplish satisfactory cooling on the largest molds, where required. The effect of really cold molds on the molded product from a strength and life point of view has not been fully appraised, but it is believed that no undue strains are set up. With the preheater to raise the temperature of the matrial before molding, and the mold cooler to remove heat after molding, it is a proven fact that cycles on many jobs can be decreased and production increased up to 25%. This is especially true on marginal or difficult jobs where scrap is running high, where the heater is run in the upper limits, and partial fills and burns result from taxing the rated capacity of equipment.

Many molders are being plagued with high water bills, and there has been developed a combination of thermostatically controlled valve and thermocouple which maintain hydraulic oil temperature at a safe 120°. The valve is installed in the feed line to the oil cooler, and a thermocouple of special design is placed in the individual oil tank or reservoir. The unit is definitely a money saver, and as molders become more cost conscious, it will be definitely interesting. Two models are offered. The first is without indicating thermometer, and sells for $96.50, and the second is with individual temperature indicator to show the temperature of the oil at all times, and sells for $130.59. Installation is simple in almost all cases, but in a few instances on certain makes and models is more complicated on account of fixed piping, and the location of the oil cooler in relation to the oil reservoir.

Another item for which molders are still look-

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ing high and low is a good pair of substantial flush nippers or clippers for clean trimming of molded parts. Such a pair of nippers is now available, having hardened interchangeable blades. Blades may be ground to suit the job, and are easily installed in the cutters. To date these nippers have all been hand made, and so the price is still relatively high for that reason: $18.50 a pair, but still they have met with a most favorable reception even at a price which we consider out of line, but unfortunately unavoidable. Due to the relatively limited demand for a special type of cutter, and the continuing reluctance of any tool manufacturer to tool up for an item of a highly specialized nature directed at a limited market, we have not yet been able to arrange for volume production of the nippers.

There are a variety of other items required by the injection molder which we have not yet been able to offer in standardized approved makes. Mold clamps are one thing, and a satisfactory applicator that will successfully handle stearate and be durable, easy to fill, and reliable in use is another that we intend to offer soon. Good applicators for silicone mold release compounds, mineral oil and soap base lubricants are also being developed.

The interesting thing to note from the above list of standard injection plant equipment is that many of the supplies the molder needs are now readily available, and need not be improvised as heretofore on a hit-miss basis. Just as most progressive molders take full adanvtage of the relatively cheap standard die sets now available, so do they take advantage of the experience that has gone into the development and perfection of the other supplies like the oil filters and machine mounting pads and others mentioned here. The cost of the items has been frankly given because the day is gone when it paid to develop one's own accessories, for severe limitations always appeared sooner or later in the home-made item which caused its maker to regret the time and money spent on it. Most molders now see that it is false reasoning to say that a cooler (for example) can be built more cheaply than it can be bought. There is always the difficulty of getting all the parts together, but apart from this is the fact that such reasoning implies that time and labor are not figured as expense. However, it is out of the very trial and errors of many molders that the present accessories have been perfected. Such supplies as we have been discussing would logically come from a mill supply house, but as the injection industry became more specialized, so did the accessory equipment required. The old wire clippers ground down were only makeshift, and now comes the new single use sprue cutter, available from a supply house specializing in supplies for the injection molder exclusively, and also in bringing the injections molders' increasingly specific needs forcibly to the attention of the equipment maker so that he will see and understand the molder's problems, and alter his applicable models to suit, and not expect the molder with his limited tool shop facilities to undertake makeshift alterations on various pieces of equipment, as during the early years of his growth. A few remarks on used injection machines are not out of place here, not so much because used injection machines are a part of our business, as because the topic is one of timely interest. No one would deny that the phenomenal expansion of the injection industry in 1946-7 (where the number of machines in use was doubled in a period of 18 months) has long since passed the economic boundary line which marks plain old-fashioned over-expansion, with all its attendant problems of business failures, price cutting, and other signs of confusion and desperation.

For various reasons, only about 40% of the machines in this country are running today. Why then do second hand machines still command top prices, especially in certain more popular makes and models The reasons seem to be that the average molder was adequately financed, and this is understandable since it was really an easy matter to interest capital with the come-on implicit in the word "plastics". The largest numbers of idle machines are found in the largest plants — plants capable of weathering even a prolonged slump in the demand for their molded goods. These concerns have not even entertained the idea of releasing any equipment for sale. The smaller shops, in some cases now hard-pressed, regard the injection machine as an investment, and do not recognize any shrinkage in the value of their equipment regardless of industry conditions. With the machine paid for, they are able to hold on, hoping for a break, for a revival of the back-log days of 1946, when selling problems were not even known to exist.

Last spring there were numerous machines for sale, many still crated, but now the surplus is apparently drying up, and this is understandable. At no time in the history of injection molding have more really good jobs stood in the offing. There have been set-backs, like the tendency of the auto industry and the public to regard plastics as "cheap", as inferior to plated metal. But new applications, sound applications seem more in evidence than ever before. Many machines are now molding plastic wall tile. If this bubble breaks, it will be a severe blow to the industry, perhaps worse in many ways than the recent reaction in the top market against certain applications of plastics. The collapse of the tile bubble would have tremendous repercussions for molders, for it would throw large numbers of machines into the custom field, and into the second hand market. Powerful material companies are behind it, however, and properly merchandized and applied, the product may well prosper. Plastic toilet seats are another item which if a consumer reaction occurs against the poorer designs now on the market, could well cause some larger injection machines to appear on the second hand market.

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Injection Molding

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similar experiences have only confirmed my opinion that what thermoplastics were going to need if they were to succeed in the applications being planned for them in 1945 and 1946 was an attention to excellent quality. Molders as a general rule continued to look to too thin sections, to figure on too fast cycles, and to look at too high and too quick profits. The past six months have done much to clear the air of any misconceptions of thermoplastics as an engineering material, and there is every indication that the new jobs soon to appear in many molding rooms will be on a re-evaluated basis. I do not think that the conditions which led to the cancellations and set backs and inventories which marked the injection industry's famous or rather infamous black January of 1947 will recurr.

Most shrewd molders are avoiding the use of the abused word "plastics" in their newer advertising projects. Most of the articles on thermoplastic applications say that the material is colorfast, won't fade or chip, won't warp or crack, is pleasant to the touch, and generally imply that all other materials do not have these same properties. By implication also the now stereotyped plastics success (?) story has a tone of veiled apology, a forthright omission of a discussion of any possible limitations of the material in favor of a catalog of its good points which may not even have any real bearing on the particular application. A quick glance at any plastics magazine, whether it be the trade papers or the house organs of industrial concerns will reveal what I mean. But no editorial approaches, no advertising millions will alter any facts or bring out the depression dollar unless the product involved is truly worthy one. The country's best molders are coming to avoiding the stereotyped story, and to offering their products in the same matter of fact manner, the same frank language that any other manufacturer uses, without the accent on the previously magic word "plastics". Properly engineered, properly molded plastics can definitely compete in countless applications with die casting, wood, glass or ceramics, though in many cases price still works against us. However, new concepts of pricing injection molded parts will not only allow quality plastics to compete on a price but on a merit basis with other materials, or to supplement or complement them as the case may be. The get-rich-quick notion that infected our industry took very sick last winter, and early this summer appears to have died and was buried. Molders have settled down seriously to develop new applications, to improve and to salvage many old ones. As a result, I believe that the next six to nine months will see some of the best applications, the best engineering, and the most really basic progress the injection industry has ever made. The gains of 1946 we now see were not real gains. Capacity was not everything. Quality has now come to the fore, and there it is likely to remain. Quality moldings are opening good fields where sales opportunities are a great deal steadier and sounder than the flash in the pan, flood the market quick, the junk molding, which characterized all too many molders toward the end of the wars and shortly thereafter. While I do not predict a "boom" for the injection industry, I think that the average molder will find he is entering a period where he will enjoy a moderate volume of substantial products that will continue for a good while, especially if he designs his products to qualify as quality merchandise.

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Properly engineered, toilet seats can be made of thermoplastics, but many of the designs are poor, the product flimsy and unworthy of the price asked. It is the now-familiar story of bathroom hardware of molded plastic all over again, where the entire potential field was ruined by unscrupulous or inexperienced molders, only on a larger scale. Previously there were other timely items to go on the machined idled by the plumbers' rebellion against plastic hardware. Today this is not true, and the failure of an application like toilet seats through the fault of a few will definitely be mirrored in the secondhand market for machines.

Another factor affecting used injection machines has been the efforts of certain manufacturers to unload inventories of injection machines which arrived on the shipping floor after the January 1947 break in the injection business. One manufacturer has made reductions in new machines prices up to as high as 20%, to stimulate business. With a radical change in model immiment, another manufacturer offered to install injection equipment on a basis of no down payment, no interest on the unpaid balance, and a flat monthly charge to be paid only if the machine was in actual operation! This was first expected to have severe repercussions on the used machine price structure, but the fact remained that very few if any machines were actually moved on this basis; whether prospects got wind of the coming model change — the inventory soon to be obsolete — and suspected a dodge, or whether their common business sense caused them to see the inherent menace of free machinery, still sufficient machines did not move out into the industry to affect the price of used machines. If anything, the price of used equipment has firmed, specially in some makes and models.

Past experience has definitely proven that certain makes and models do certain types of work better than others. Where the molder knows the equipment and how to secure maximum results from a specific machine, we believe he is definitely justified in purchasing used equipment. We do not primarily regard the used injection machine field therefore as a place to pick up bargains: it is our aim to supply a machine for the job to be done.

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Many machines today have only junk value due to radical changes in design since their appearance, impossibility of securing spare parts from the original manufacturer, and to inherent weaknesses which prevent maximum production. Certain first models of newer manufacturers also present a real risk, not only because of the succeeding changes and improvements based on cessation of war-time material substitutions, and actual experience in the field, but because of the prolonged time to identify and secure now off-standard parts. Certain machines whether one or ten years old are "lemons", and the only insurance against getting such a machine is to know its whole history. In a word, we prefer to regard the second hand machine business as a service business because of the risks to our customers of just handling any and all machines, and the embarrassment of having to tell a prospective would-be seller of equipment that it is worth next to nothing. The old maxim applies as it never did before: you get just what you pay for. We confidentally expect the demand for certain makes and models of machines to remain high, while others, because of obsolescence, lack of spare parts, and limitations in the original design — industry orphans — will continue to drop in price as they have been doing for nearly a year.

Infra-Red Oven

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heating with a single infra-red lamp is not good practice.)

RACK-TUB

Comes ready to plug into a single-phase 230 volt line. (Three-phase wiring can be furnished on request.) Total load 8 KW, or 35 amperes. Two heat zones, each controlled by a 30 ampere fused switch so lower half can be cut off when processing shorter racks, etc. Sixteen toggle switches further control various settings of the 32 fixed-focus 250 watt lamps furnished with each Rack-Tub. Height: 48" overall. Shipping weight: 200 pounds. Top is removable in two halves. Cross-bar supports hangers hooked onto it and is adjustable for various rack lengths under 42" overall and 20" across. Average capacity: 24 large racks per 8 hours. Floor legs. Oven interior is insulated throughout. When not in use on rack coatings, Rack-Tub will bake:

(1) Canvas abrasive grinding and polishing wheels coated with plastic held granuals in one hour.

(2) Lacquers or synthetic enamels, either dipped or sprayed, can be baked on work held on special uncoated rack fixtures made especially for the purpose. Thus, the plater may sell both baked enamel and plated finishes.

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